

LEVELS OF NATURALLY PRODUCED METHOXYLATED MeO-PBDEs AND THEIR BIOMAGNIFICATION IN HARBOUR SEALS AND HARBOUR PORPOISES FROM THE NORTH SEA

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Harbour seals and porpoises are top predator species from the North Sea. Both species have long life spans and hence, are known to accumulate high levels of anthropogenic contaminants. To gain knowledge about the behaviour of naturally-produced compounds in these marine mammals, the biomagnification of naturally-produced methoxylated polybrominated diphenyl ethers (MeO-PBDEs) was assessed. The biomagnification of MeO-PBDEs (2'-MeO-BDE 68 and 6-MeO-BDE 47) was lower in harbour seals (all BMFs < 1) compared to the same age-gender groups of the harbour porpoises (all BMFs > 1), which might be an indication for a better developed metabolic breakdown of these compounds in harbour seals, as was previously also suggested for PBDEs. In both predators, 6-MeO-BDE 47 had the highest concentrations compared to 2'-MeO-BDE 68. In general, the highest concentrations were found in juveniles, suggesting an increased biotransformation capacity with age or the influence of dilution by growth for both species. Here we show that brominated organic compounds produced by a natural source, most likely algae in the North Sea, can biomagnify and accumulate in these top predators, although to a lesser extent than anthropogenic lipophilic contaminants such as PCBs and PBDEs.